21 August 2014 - 'Leaves on the line' can cause significant delays and disruption for the millions of commuters and freight operators who travel the rail network each autumn.

The Met Office has developed a new, enhanced, low adhesion forecast system to help the rail industry plan their mitigation for this problem.

Autumn leaves can cost the rail industry in excess of £100 million a year, as they contaminate the rail head and can lead to very low levels of adhesion especially when combined with slightly wetted rails. Poor adhesion prevents trains from accelerating and braking precisely, which can lead to delays and, more significantly, potential safety breaches such as trains going through red signal lights or over running station platforms, or stopping track circuits from operating correctly (identifying whether a train is on that section of track or not).

A unique high resolution leaf-fall and damp rail forecast service has been developed by the Met Office. This takes into account predicted wind speeds, the volume of leaves remaining on the trees, accumulated litter on the ground and the types of trees. It also estimates the effect of frosts and storms on leaf-fall rates alongside the likely occurrence of light rain, frost and dew. These more detailed predictions help the rail industry develop more dynamic mitigation strategies helping to keep the rail network operating on time and to budget.

Translink is one of the companies currently using the leaf-fall forecast. Gary Cooley, Operations Technical Manager at Translink said, "The forecasts can cut the time taken to treat the rail heads by two weeks."

This means that operating expenditure has reduced and efficiency increased. The adhesion forecasts also alerts drivers on particularly bad days. Translink say they have recorded their "best performance on record" thanks to the Met Office forecast service.

Network Rail and South West Trains Alliance is another user of the recently developed Met Office leaf-fall and damp rail forecast system, stating that "the system has enabled it to develop more proactive response plans".

Ultimately, the new service will help train operators to minimise penalties incurred from leaf-fall related delays on their routes, and will help them to plan mitigation activities during periods of high leaf-fall risk, i.e. in areas of very low adhesion forecast, alternative services, or amended timetables can be issued ahead of the particular day, avoiding commuter delays, and avoidable fines for poor time-keeping performance.

The volume of leaves falling and risk of causing contamination can vary significantly from day to day, depending on the weather and different types of trees along the rail routes. The UK's 21,000 miles of track can quickly be disrupted with serious and cumulative delays as trains are unable to maintain time tables. The Met Office leaf-fall forecast service helps to reduce the likelihood of safety breaches and delays on the rail network.

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